

PATENT COOPERATION TREATY

PCT

INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference FNTYA062WO	FOR FURTHER ACTION see Form PCT/ISA/220 as well as, where applicable, item 5 below.	
International application No. PCT/JP2005/006988	International filing date (day/month/year) 05/04/2005	(Earliest) Priority Date (day/month/year) 07/04/2004
Applicant TOYOTA JIDOSHA KABUSHIKI KAISHA		

This International Search Report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This International Search Report consists of a total of 2 sheets.

☒ It is also accompanied by a copy of each prior art document cited in this report.

1. Basis of the report

- a. With regard to the language, the international search was carried out on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.

☐ The international search was carried out on the basis of a translation of the international application furnished to this Authority (Rule 23.1(b)).

- b. ☐ With regard to any nucleotide and/or amino acid sequence disclosed in the international application, see Box No. I.

2. ☐ Certain claims were found unsearchable (See Box II).

3. ☐ Unity of invention is lacking (see Box III).

4. With regard to the title,

☒ the text is approved as submitted by the applicant.

☐ the text has been established by this Authority to read as follows:

5. With regard to the abstract,

☒ the text is approved as submitted by the applicant.

☐ the text has been established, according to Rule 38.2(b), by this Authority as it appears in Box No. IV. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

6. With regard to the drawings,

- a. the figure of the drawings to be published with the abstract is Figure No. 1

☒ as suggested by the applicant.

☐ as selected by this Authority, because the applicant failed to suggest a figure.

☐ as selected by this Authority, because this figure better characterizes the invention.

- b. ☐ none of the figures is to be published with the abstract.

INTERNATIONAL SEARCH REPORT

International Application No

PCT/JP2005/006988

A. CLASSIFICATION OF SUBJECT MATTER
IPC 7 F01P11/14 F01P7/04

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
IPC 7 F01P

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 4 779 577 A (RITTER ET AL.) 25 October 1988 (1988-10-25) column 3, line 21 - line 62 column 5, line 51 - line 63; figures	1-18
X	US 5 647 317 A (WEISMMAN, II ET AL.) 15 July 1997 (1997-07-15) column 8, line 66 - column 10, line 28; figures	1,3-7,9, 10, 12-14, 16,17
A	US 6 450 275 B1 (GABRIEL ET AL.) 17 September 2002 (2002-09-17) abstract	1,3-8, 10, 12-15,17

☐ Further documents are listed in the continuation of box C.☒ Patent family members are listed in annex.

* Special categories of cited documents :

- *A* document defining the general state of the art which is not considered to be of particular relevance
- *E* earlier document but published on or after the international filing date
- *L* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- *O* document referring to an oral disclosure, use, exhibition or other means
- *P* document published prior to the international filing date but later than the priority date claimed

- *T* later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
- *X* document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
- *Y* document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.
- *Z* document member of the same patent family

Date of the actual completion of the international search

12 July 2005

Date of mailing of the international search report

20/07/2005

Name and mailing address of the ISA

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Authorized officer

Paquay, J

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No.

PCT/JP2005/006988

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
US 4779577	A	25-10-1988	DE 3625375 A1	04-02-1988
			DE 3770535 D1	11-07-1991
			EP 0254815 A2	03-02-1988
			JP 63041617 A	22-02-1988
US 5647317	A	15-07-1997	US 5615654 A	01-04-1997
			US 5445128 A	29-08-1995
			US 6330873 B1	18-12-2001
			US 6220223 B1	24-04-2001
			US 5847644 A	08-12-1998
			CA 2169648 A1	02-03-1995
			CA 2444817 A1	02-03-1995
			DE 69427029 D1	10-05-2001
			DE 69427029 T2	31-10-2001
			DE 69430222 D1	25-04-2002
			DE 69430222 T2	21-11-2002
			DE 69430454 D1	23-05-2002
			DE 69430454 T2	28-11-2002
			EP 0715687 A1	12-06-1996
			EP 0937884 A2	25-08-1999
			EP 0937885 A2	25-08-1999
			WO 9506200 A1	02-03-1995
			US 5483927 A	16-01-1996
US 6450275	B1	17-09-2002	CA 2360708 A1	02-05-2002
			DE 10153587 A1	16-05-2002
			GB 2370107 A ,B	19-06-2002
			JP 2002223505 A	09-08-2002

PATENT COOPERATION TREATY

From the
INTERNATIONAL SEARCHING AUTHORITY

PCT

To:

see form PCT/ISA/220

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY (PCT Rule 43bis.1)

Date of mailing
(day/month/year) see form PCT/ISA/210 (second sheet)

Applicant's or agent's file reference
see form PCT/ISA/220

FOR FURTHER ACTION
See paragraph 2 below

International application No.
PCT/JP2005/006988

International filing date (day/month/year)
05.04.2005

Priority date (day/month/year)
07.04.2004

International Patent Classification (IPC) or both national classification and IPC
F01P11/14, F01P7/04

Applicant
TOYOTA JIDOSHA KABUSHIKI KAISHA

1. This opinion contains indications relating to the following items:

- ☒ Box No. I Basis of the opinion
- ☐ Box No. II Priority
- ☐ Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- ☐ Box No. IV Lack of unity of invention
- ☐ Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- ☐ Box No. VI Certain documents cited
- ☒ Box No. VII Certain defects in the international application
- ☒ Box No. VIII Certain observations on the international application

2. FURTHER ACTION

If a demand for international preliminary examination is made, this opinion will usually be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA"). However, this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1bis(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of three months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

3. For further details, see notes to Form PCT/ISA/220.

Name and mailing address of the ISA:



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**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY**

International application No.
PCT/JP2005/006988

Box No. I Basis of the opinion

1. With regard to the **language**, this opinion has been established on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.
 - ☐ This opinion has been established on the basis of a translation from the original language into the following language , which is the language of a translation furnished for the purposes of international search (under Rules 12.3 and 23.1(b)).
2. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application and necessary to the claimed invention, this opinion has been established on the basis of:
 - a. type of material:
 - ☐ a sequence listing
 - ☐ table(s) related to the sequence listing
 - b. format of material:
 - ☐ in written format
 - ☐ in computer readable form
 - c. time of filing/furnishing:
 - ☐ contained in the international application as filed.
 - ☐ filed together with the international application in computer readable form.
 - ☐ furnished subsequently to this Authority for the purposes of search.
3. ☐ In addition, in the case that more than one version or copy of a sequence listing and/or table relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.
4. Additional comments:

Box No. VII Certain defects in the international application

The following defects in the form or contents of the international application have been noted:

see separate sheet

Box No. VIII Certain observations on the international application

The following observations on the clarity of the claims, description, and drawings or on the question whether the claims are fully supported by the description, are made:

see separate sheet

Re Item V.

- 1 Reference is made to the following documents:
D1 : US 4 779 577 A (RITTER ET AL.) 25 October 1988 (1988-10-25)
- 2 The present application does not meet the criteria of Article 33(1) PCT, because the subject-matter of the claims 1-18 is not new in the sense of Article 33(2) PCT.
- 2.1 To claim 1: Document D1 discloses (*the references in parentheses applying to this document*) a cooling system (*among others: heat exchanger 6, condenser 19*) that cools down multiple different heat generators (*internal combustion engine 3, air conditioner 20*), said cooling system comprising:
 - multiple cooling circuits (*4, 5 and 6 for the engine coolant, the circuit for the air conditioner 20 and the liquid circuit for the automatic transmission, as mentioned in column 3, line 50 and 51*) that adopt multiple different heat exchange media to cool down the multiple different heat generators;
 - a heat exchange module (*6, 19*) that uses outside air to cool down the multiple different heat exchange media of said multiple cooling circuits (*4, 5 and 6 for the engine coolant, the circuit for the air conditioner 20 and the liquid circuit for the automatic transmission, as mentioned in column 3, line 50 and 51*);
 - an outside air supply regulation module (*9-13*) that regulates a supply of the outside air used by said heat exchange module to cool down the multiple different heat exchange media; and
 - a control module (*15*) that drives and controls said outside air supply regulation module in response to control signals input from said multiple cooling circuits in a normal state, while driving and controlling said outside air supply regulation module to increase (*column 5, line 59-61: "the flaps are simultaneously completely opened and the blower is run at maximum rpm"*) the supply of the outside air in an abnormal state (*"failure of sensor", as mentioned in column 5, line 55*) where any abnormality arises in the control signals input from said multiple cooling circuits.

As document D1 shows all the features of the first claim, the subject-matter of the first claim is not inventive (Article 33(2) PCT).

Also, document D2 shows all the features of the first claim.

2.2 To the claims 2 to 9 document D1 mentions:

- the maximum air supply capacity of the second claim (column 5, line 60),
- the temperature measurement unit of claim 3 (21, 24 and 25),
- the working state detecting unit as claimed in claim 4 (unit 15),
- the in claim 5 claimed cooling fan (18),
- the water coolant like claimed in claim 6 (column 12, line 24),
- the radiator (6) from claim 7,
- the in claim 8 claimed internal combustion engine and
- the method of claim 9 (column 5, lines 51-63).

In view of this, the subject-matter of the claims 2 to 9 is not new. (Article 33(2)PCT).

2.3 To the claims 10 to 16: In these claims, a motor vehicle is claimed. The motor vehicle contains the features as claimed in the claims 1 to 9. As the document D1 shows also the motor vehicle, the subject-matter of the claims 10-16 is not new either. (Article 33(2) PCT).

2.4 To claim 17: In this claim, a method for controlling a cooling system with the features of claim 1 is claimed. The features of claim 1 are not new (see point 2.1 of this communication). From column 5, lines 51-63 of document D1, it is clear, that document D1 does not only show the device, but also the method. Therefore the subject-matter of the claims 17 is not new (Article 33(2) PCT).

2.5 To claim 18: The subject-matter of claim 18 is not new because the maximum supply of air is known from document D1, column 5, line 60.

Re Item VII.

Independent claims 1, 10 and 17 are not in the two-part form in accordance with Rule

6.3(b) PCT, which in the present case would be appropriate, with those features known in combination from the prior art (document D1) being placed in the preamble (Rule 6.3(b)(i) PCT) and with the remaining features being included in the characterising part (Rule 6.3(b)(ii) PCT).

The features of the claims are not provided with reference signs placed in parentheses (Rule 6.2(b) PCT).

Re Item VIII.

The application does not meet the requirements of Article 6 PCT, because claims 1 and 10 to 16 are not clear.

- 1 To the claims 1 and 10: Although claims 1 and 10 have been drafted as separate independent claims, they appear to relate effectively to the same subject-matter and to differ from each other only with regard to the definition of the subject-matter for which protection is sought and in respect of the terminology used for the features of that subject-matter. The aforementioned claims therefore lack conciseness and as such do not meet the requirements of Article 6 PCT.
- 2 To the claims 11 to 16: Claim 10 claims a motor vehicle with the cooling system of claim 1. The claims 11 to 16 depend on claim 10. Apart from the aspect of the vehicle, claim 10 corresponds to claim 1, claim 11 to 2, claim 12 to 3, claim 13 to 4, claim 14 to 5 + 6 + 7, claim 15 to 8 and claim 16 to 9. From that point of view, it would be logical, that the claims 11 to 16 depend on claim 11 like the claims 2 to 9 depend on 1. Nevertheless, the claims 11 to 16 depend on claim 9.